

# ***THE B&O MODELER***

Volume 3, Number 3

MAY/JUNE 2007



## **FGEX AAR CLASS RBL HO SCALE CLEARANCE CAR CE-15 MODELING THE B&O'S KK-4B MALLETS**

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Cover Photos – Top, FGEX #897832 – Jeff Hanke photo. Middle, CE-15 – Chris Tilley photo. Bottom, KK-4b #7513– Greg LaRocca photo.

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## AN INVITATION TO JOIN THE B&O RAILROAD HISTORICAL SOCIETY

The Baltimore and Ohio Railroad Historical Society is an independent non-profit educational corporation. The Society's purpose is to foster interest, research, preservation, and the distribution of information concerning the B&O. Its membership is spread throughout the United States and numerous foreign countries, and its scope includes all facets of the B&O's history. Currently the Society has over 1600 registered members.

Members regularly receive a variety of publications offering news, comments, technical information, and in-depth coverage of the B&O and its related companies. Since 1979, the Society has published a quarterly magazine, *The Sentinel*, dedicated to the publication of articles and news items of historical significance. Other Society publications include monographs, calendars, equipment rosters, and reprints of original B&O source material. Their

purpose is to make otherwise unobtainable data available to the membership at reasonable cost.

Membership in the Society is a vote of support and makes all of the Society's work possible. It provides those interested in the B&O with a legitimate, respected voice in the railroad and historical communities. By working together, B&O fans are able to accomplish much more than by individual efforts. No matter how diverse your interests or how arcane your specialty, others share your fascination with America's most historic railroad. We invite your participation. Several classes of [annual memberships](#) are available. Regular memberships are only \$35.00. If you would like to join, click [here](#) to fill out our [membership application](#), print a copy and mail it to:

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## FROM THE EDITOR

### Approaching Two Years

It is hard for me to fathom that the *The B&O Modeler* has finished two years. I was unsure if we would make a second issue. The first issue had articles by the Editor and the Associate Editor and little prospects for further contributions. Well thanks to many of our readers, we have had articles to fill a

magazine every two months for two years. Thank you.

There are still more articles out there. I know there are some folks building some unique models that we would all like to see. It's not hard, send us an article. Some of you are only thinking about building your favorite B&O model but aren't sure about it. Drop us



a line. The one great thing about this enterprise is that it has allowed me and others to meet new modelers with whom to share information. Projects that I thought would be interesting, but did not know how to start are now coming together thanks to the many friends I have made through the magazine. It is a great network that needs more members. Jump in.

Some folks have contributed manuscripts that we need to track down additional info in order to publish what we feel is a complete article. If you have submitted something and haven't seen it published

yet, drop me a line. We may be waiting for a reply from someone or we may have simply forgotten to get it out the door. We are all volunteers and at times we are overwhelmed with information. Don't be bashful, help us out and keep us straight.

One project we still need more information about is the Fruit Growers Express reefers in the 1940's and 50's. This issue has an article about more modern cars, but the field is wide open for more information about the older eras of this B&O related company. Jump in.

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## NEWS FROM THE COMPANY STORE

BY GEORGE STANT

Why should you become a member of the Baltimore and Ohio Railroad Historical Society? Besides belonging to a great railroad historical organization, you will also get some nice discounts on the multitude of items that we sell through our Company Store. For example as a Society member, you can save up to 20% on most books over the price we charge to the general public. And on our models, you can save from between 10% and 15%, more with some of the specials that we send out to members. The same goes for the more than 175 reprints of

manuals, track plans, and other documents taken from B&O historical records. And remember the profits from these sales go directly back to the Society's ongoing preservation efforts.

Look for the release of the *B&O Modeler* on CD that we are working on right now. Eventually older issues will be removed from the internet and they will be available on CDs with an index. We are working with the same team that produced our very successful *Sentinel* on CD.



Ed Bommer's O scale model of C-721, which was used in New York Terminal/SIRT service

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## MODEL PRODUCT REVIEWS

### HO Scale

#### I-17 and I-17a Caboose kits from Pacific Mountain Scale Shops

By Chris Tilley, *Model photography by the author.*



The I-17 caboose kits from Pacific Mountain Scale Shops (PMSS) are in! They are well worth the wait. For those already familiar with the previous PMSS offerings, the same exacting attention to detail is upheld. There are also some new features included that make these kits even better than the others.

Anyone who has built one of the previous PMSS kits is likely familiar with the white resin castings and their ability to take extremely fine details and the unfortunate way that particular resin eats small drill bits. For the I-17 series kits, the manufacturer has chosen two new gray resins that hold the detail as well or better and are harder and stronger. They are also much easier to drill. The roof casting and some detail parts are made of the very hard resin. It is so strong that it is almost impossible to break, even on purpose. The very fine roofwalk saddles are almost indestructible.

The etchings in these kits are spectacular! The end platform surface, roofwalk, handrails (arc and J shape), slotted and solid back steps, brake rigging, doors and end rail/corner post/end sill assembly are all expertly rendered. The kits include the parts to build the I-17's slotted back steps or the I-17a's solid back steps with either wooden or steel grated step treads. Recalling the fragile end rail castings of the

previous PMSS kits, the end rail etching is remarkably stout. The handrails are all etched metal as well. The etched handrails fit perfectly with one exception, the grabs above the end wall windows, which must be bent from provided wire the old fashioned way. All handrails can be added in half an hour or less. The only drawback, if it can be called that, is the flat cross-section of the handrails, but at any distance over a foot, it is not readily apparent. The etched brake levers and end railing/end sill/roof fascia/corner post/ladder assembly are particularly noteworthy. Some of the kits come with etched window rock screens which are also well executed.

All the kits come with a complete, though somewhat basic interior based off the diagram in Bob Hubler's *Caboose of the Baltimore and Ohio Railroad* (Item number 10013 in the Company Store, <http://borhs.org/Shopping/index.html>). All the items appear to scale. The toilet is optional since not all cars were originally so equipped. C-2925 and up were built with toilets, and C-2909 and below were built without toilets and later retrofitted. The underframe "toilet tank" (a retention-type toilet) is a very, very recent innovation - appearing in the mid-1970's. The earlier toilets were a "straight pipe" to the roadbed. (The "pipe" is clearly visible in photographs.) Only Chessie painted cars and a few



cars in the 1970 pool scheme which did not get the Chessie paint would have had the "toilet tank". Red cars and the 1965 pool scheme cars would never have had the "toilet tank".



The battery box is another late model addition. Only the 1970 pools scheme cars and the Chessie cars had an external battery box. On the red cars equipped with electric markers (and a few were) and on the 1965 pool cars the batteries were internal to the caboose. When a car with the external battery box was equipped with the retention type toilet the battery box had to be moved to the opposite side of the car. These two details must be kept consistent. (Note: on the early production kit photographed, all of the underbody detail options were added, not necessarily duplicating a prototype.)



These kits include the outstanding decals we have come to appreciate from PMSS. The size, color and fonts are all correct. The only shortcomings of the decal set are the lack of a "NEW \_\_\_\_" or "BLT \_\_\_\_"

decal and no wheel/coupler data as found on the right end of the side sill. This is easily rectified by digging out old PMSS kits and using the leftovers. All kit versions also include the external battery box, toilet retention tank with bracing and choice of smoke jacks. In fact there are so many parts included, that it is often possible for the unwary to create impossible combinations for various B&O cabooses. These kits even come with a translucent red "Stimsonite reflector panel", a feature introduced on the I-17's in 1953 and continued through the C-26a class of 1975.

As good as these kits may be, there are a few minor problems. The underframe was designed for the included cast resin brake reservoir, which fits perfectly. If, however, the modeler chooses to use the more detailed plastic Tichy reservoir also included in the kit, the original mounting for the reservoir must be removed and a custom casting provided by the manufacturer must be used. It looks better anyway! Another minute problem with the underframe casting is that several of the bolt head/dimple locations for installation of the brake lever hangers are in the wrong place. This simple fix is addressed in the instructions and is only visible with a magnifying glass. The only other problem is that the coupler height was too low and the included red fiber washer must be used to raise the body .015".

The I-17 kit series is made up of four different kits. The major differences are the carbody casting, details, and decals. In conclusion, these kits are expertly detailed renderings of the prototype. It should be apparent to the reader that this author was quite impressed with this kit series - so much so that the time frame of "MY B&O" is slipping later to allow the later versions of this caboose to be included. Priced at about \$55.00 each, they are a little pricey, but well worth the cost since PMSS has made yet another model more accurate than brass.

## FGEX AAR CLASS RBL

BY JEFF HANKE

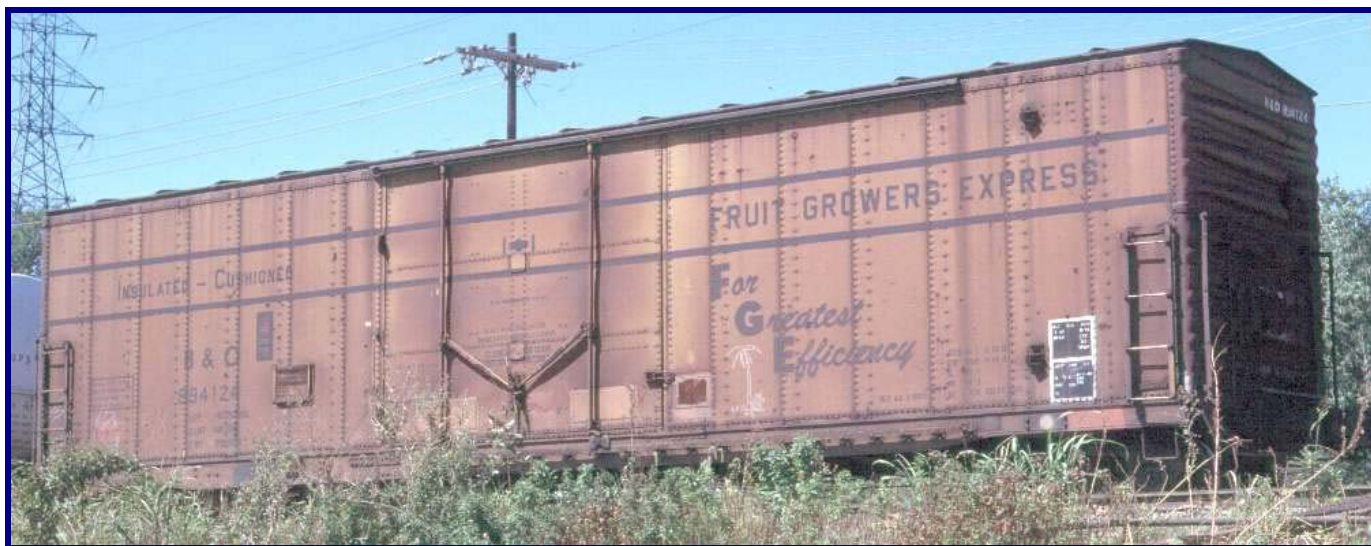
PHOTOS BY AUTHOR UNLESS OTHERWISE SPECIFIED.



### Prototype

Not every B&O freight car had the famous Capitol Dome logo on it. In the early 1980's the B&O leased several hundred bunkerless refrigerator cars from Fruit Growers Express (FGE). These cars came in twenty two number series. Each of these series was a little different from each other. The Chessie System classified all FGE boxcars in the "FGEX" class, making exact data on the cars hard to collect.

Looking to choose Chessie era cars, in the most common paint scheme seen in 1982, I chose cars in the "Two Line" FGE scheme. Photos I found were cars with numbers in the 897814-897857 series. The prototype photo below is a similarly painted B&O car to the ones modeled, but this version had a slightly different door and is numbered in the 894105-894129 series.



B&O FGEX #894124. Larry Berger Collection, <http://www.rr-fallenflags.org>.

Several other railroads had similar arrangements with FGE, including fellow eventual CSX components C&O, L&N, CRR and SCL. In the mid-1980's these cars were rebuilt and repainted into the "Solid Gold" FGE scheme. Athearn makes a good model of these

cars in this later scheme, decorated for the B&O (Athearn part #s 91315, 91316).

Walthers' kit #932-4711, that is a good match for the B&O cars as well. However, they do not offer it



decorated for the B&O. I purchased three of these kits and decided to make these cars in a batch. I find it saves time overall in painting and assembly. I don't waste any time waiting for one car to dry, I simply set it aside and use the time to paint or assemble the next car. It also provides the ability to use blocks of cars in operations. Seeing three cars together, similarly painted and with unique road numbers, is prototypical in train operations.



I started with the shell of the cars. I washed them with warm water and dishwasher soap and let dry. I then airbrushed them with Polly Scale Reefer Yellow on the sides, thinned with 70% rubbing alcohol.



When dry, I masked off the sides and painted the ends Polly Scale Boxcar Red, thinned the same way.

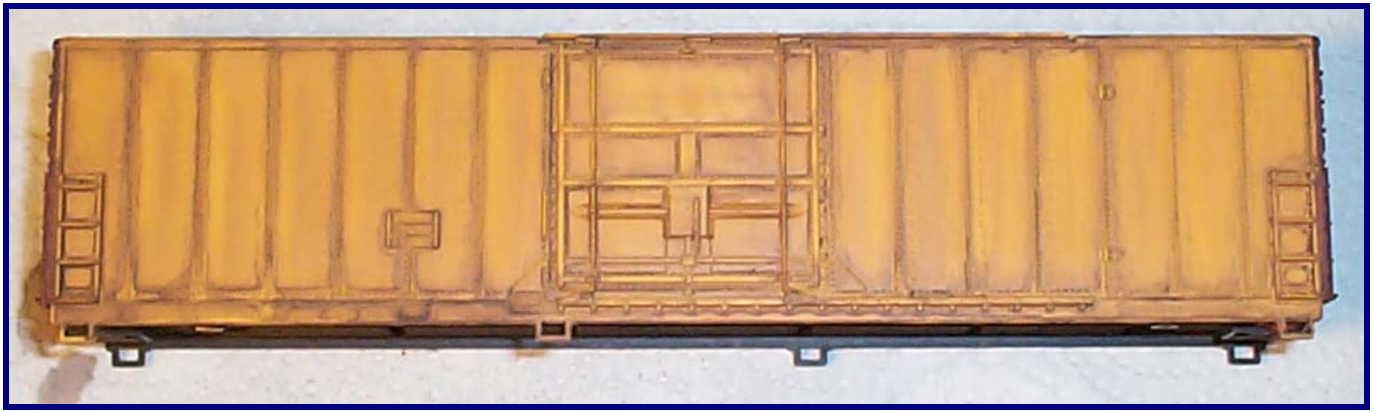


There was one difference in the three kits I purchased. Two were molded in light gray plastic and one in yellow plastic. I chose to paint the inside of the yellow one with Polly Scale Flat Black. I did this because the yellow plastic is translucent, effecting the color quality of the external paint scheme. Also, I painted the bottom of all three cars black at this time.



The next step was to apply a wash of 50% Polly Scale Roof Brown and 50% Flat Black. This mix was thinned with water and applied to the sides of the car. Once this wash was dry, I used an eraser on a pencil to remove the wash on the smooth panels on the car. This technique leaves the wash around the rivets and panel lines of the car, giving a very prototypical weathered appearance.





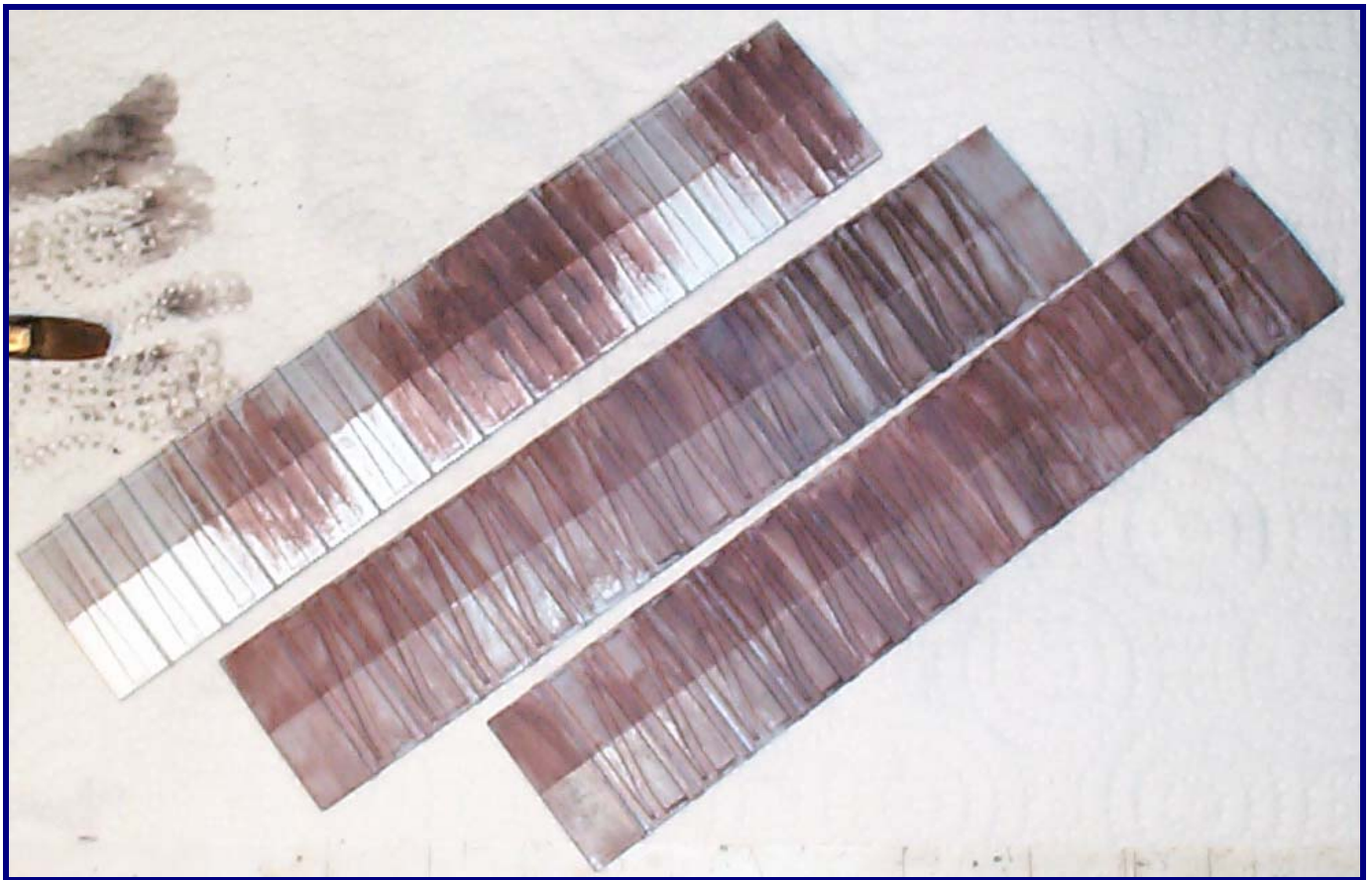
Once you are happy with the weathered appearance of the cars, seal in the weathering with two coats of Testors GlossCote. This will provide a smooth surface for decaling. I used Herald King HR-70 FGE set. Herald King has been out of business for some time. Champ Decals set HR-70 may be a substitute, if you cannot locate the Herald King decals on eBay or another second hand source. This will do all of the decals shown on these cars except the road letters, numbers, ACI card, lube stencil and wheel inspection

dot. The “B&O” and road numbers came from the Herald King H-563 covered hopper set. The ACI label and consolidated lube stencil came from Microscale sheets. The wheel inspection dot came from the Herald King set. The biggest challenge in decaling these cars are the two long stripes. Each stripe is about eight pieces of decal on my cars, carefully positioned in a straight line over the details on the doors and sides. I used plenty of MicroSol setting solution on these.



Once the decaling is complete, spray the car with two coats of Testors Dullcote and set aside to dry. The roof of the car rusted quickly. If you want to show a well weathered car, use rust colored paints and dry

brush them on to the roofs. When you are happy with the amount of “rust” on your roof, glue them to the shells.



Finish up the cars by adding Kadee #5 couplers and the trucks included in the kit. If you want to replace the plastic wheelsets with metal, do that before assembly. The final step is to lightly airbrush thinned Roof Brown paint on the bottom quarter of the car. This added road grime will tie the whole car together

with a realistic used car look. Seal this overspray with Testors Dullcote.

I am happy with the way these three cars came out. It was a relatively quick project and I now have three cars to get to market.







As a final note, since doing this project Athearn has added a model of a B&O car in this paint scheme (Athearn part #91309). Their car comes in one road

number, 897832. It is nearly identical to the cars I did here, with the exception of the Athearn car doesn't have the wheel inspection dot marking.



## References

B&O FGEX #894124 photograph accessed at <http://www.rr-fallenflags.org>.



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## HO SCALE CLEARANCE CAR CE-15

BY CHRIS TILLEY

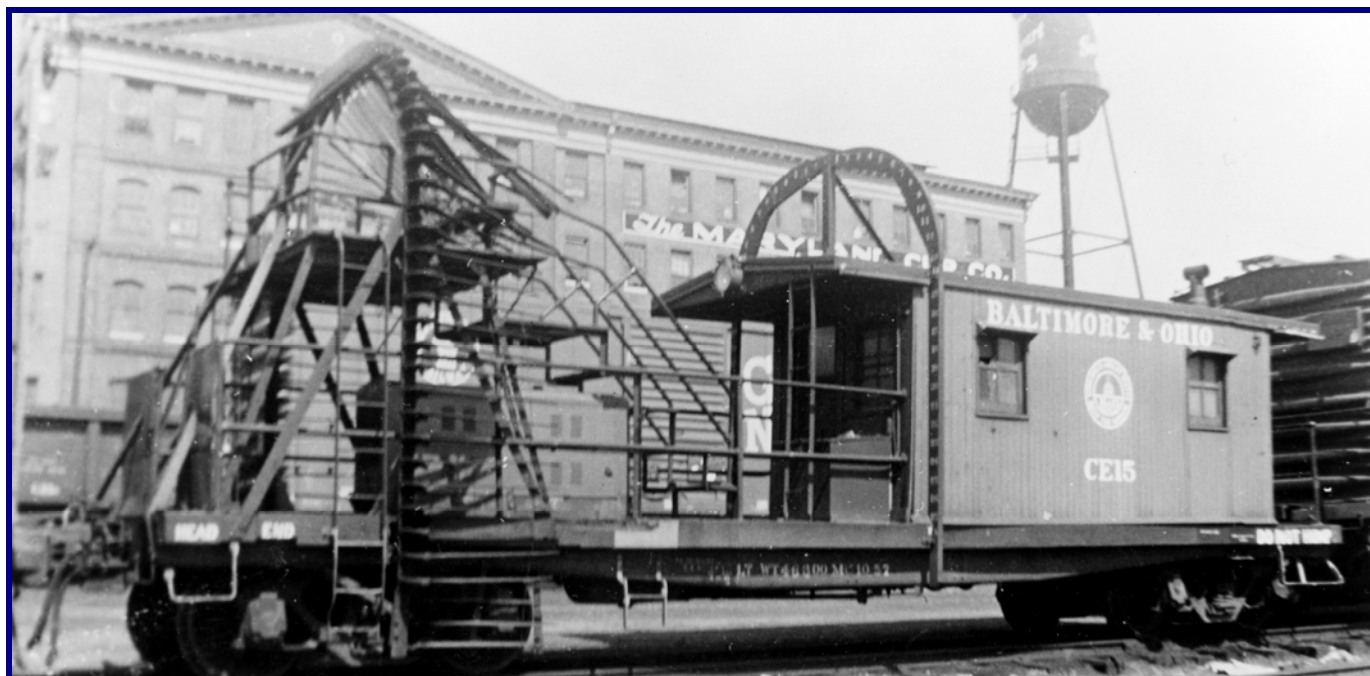
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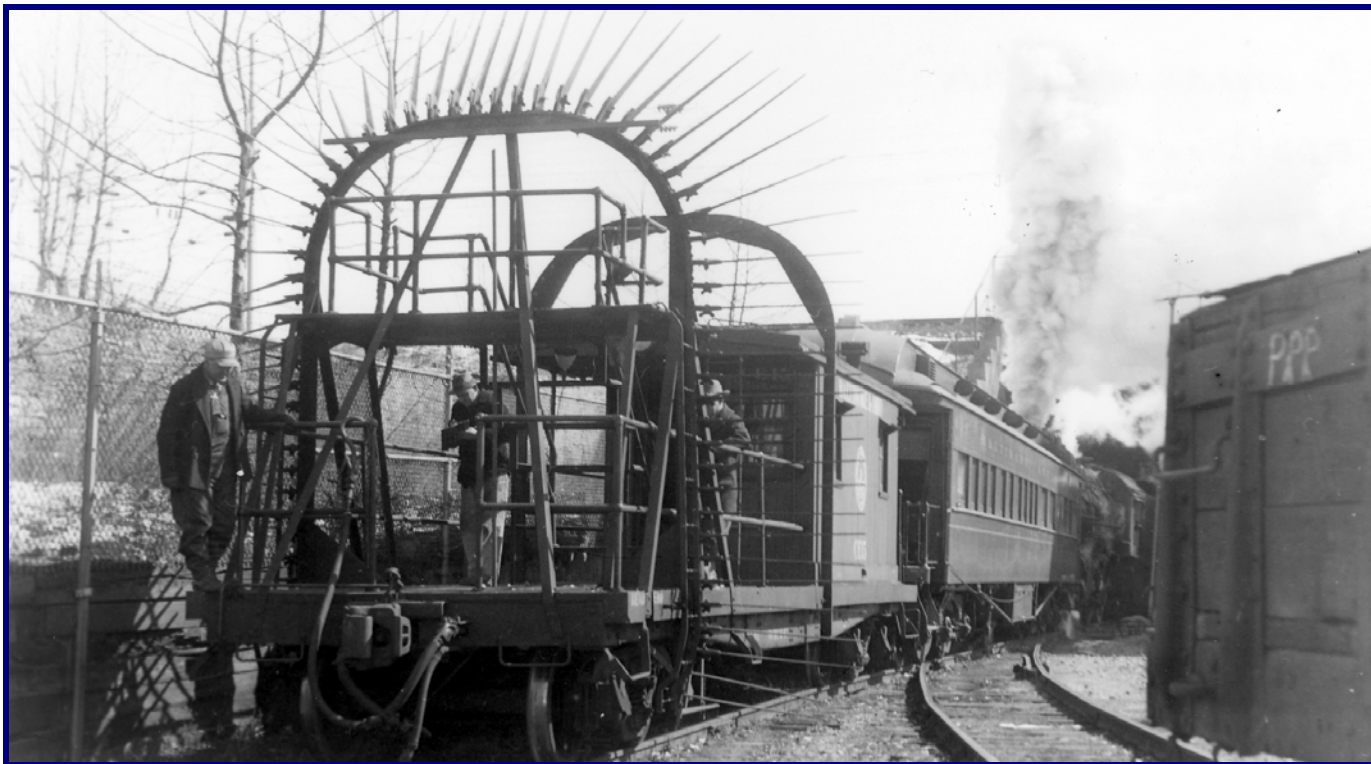
### Introduction

This project began with a chance trip to the B&O Museum in Baltimore sometime in 1993. I only had an hour and about 5 shots left on my disposable camera. CE-15 got three shots and the snowplow got two. Thus, the model is of CE-15 as it appeared in 1993 and not necessarily as it appears now after the magnificent complete restoration by the museum staff. This model is eyeballed, not measured. All the dimensions given in this article are taken from the

finished model and may not necessarily match up with the prototype, but to my eye it looked close enough for government work. All measurements in this article are given in scale inches with the exception of the descriptions of raw materials such as brass angles. For the most accurate model, get photographs from one era and use them for details as things appear to have changed over the car's service life.



Clearance Car CE-15 Baltimore, Md. May 4, 1964. Howard Ameling photograph.



Clearance Car CE-15, Eddystone, Pennsylvania, March 5, 1948. Bob's Photo Collection.

### Basic Flat Car Body

While the prototype may have begun life as a boxcar, I started with an undecorated Athearn 50' flat car in HO scale. This results in a fish belly side sill that is a bit too deep and a car that is a little over 10' too long, but as close as I could come at the time.

Step one is to remove all the cast on details, such as grab irons, brake stand and stirrup steps. Add pre-formed Tichy 18" drop grabs to the end beams of the car. Fabricate new stirrup steps from 1/16" x .015" flat brass bar. The rear steps are 36" wide with an 18" drop. There is a support bar about 8" from the back. The center steps are 18" wide and 18" drop. These steps curve out from the side of the carbody. The front step is 18" wide at the bottom, 24" wide at the top, similar to an offset stirrup step available from Detail Associates. Cover the stake pockets with a piece of brass L angle 5/32" x 5/32" cut 48'9" long. Attach with alpha-cyanoacrylate cement (ACC). If desired, add cut levers fabricated from .030" brass wire and Detail Associates long shank eye bolts (the easy way) or by bending a 15" piece of .010" x .030" flat brass bar to the shape of a capital letter **P** (the hard way). Four are required. If you opted for the hard way, you must wait to make the final bend on the cut lever that extends over the coupler until after the two brass "P"s have been slid onto the cut lever. This method matches the prototype but breaks off the

end beam much easier than the eyebolts drilled through the end beam.

### House Body

This portion of the car was built from a Roundhouse three window caboose kit. I once read an article that used two kits to make a similar house structure with one less splice, but I was too broke at the time to afford two kits to cut up.

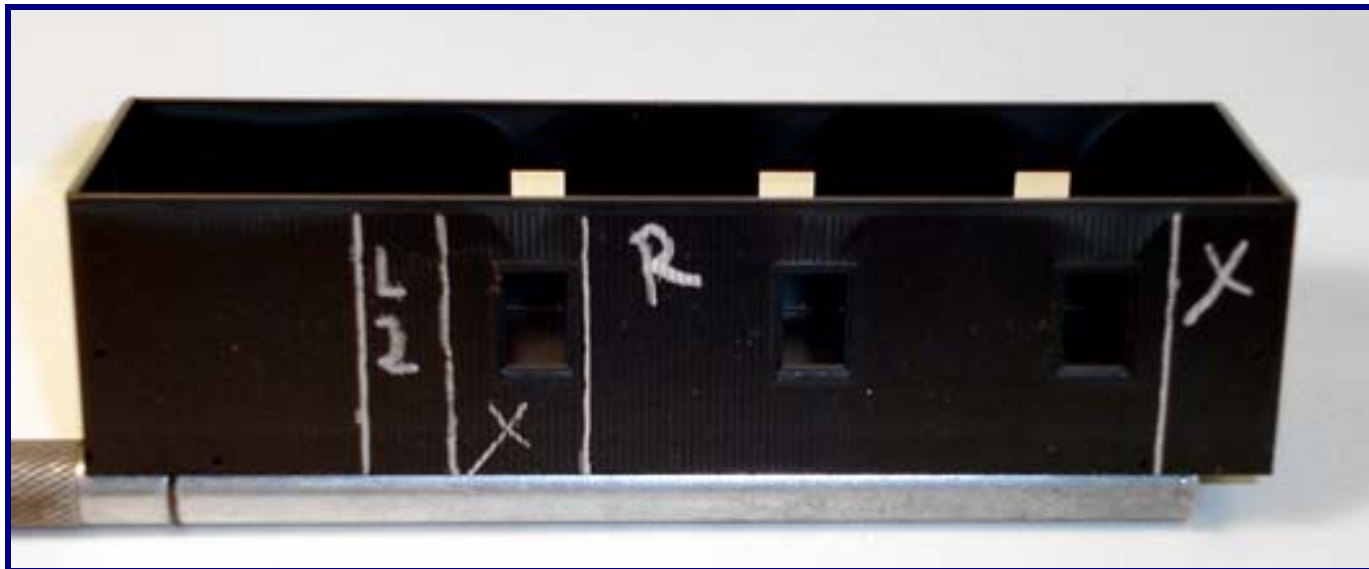
Start by cutting the roof 20'3" from the non-cupola end. Discard the cupola end. Sand off the ribs simulating the roof panels. This becomes the sub-roof. Remove the end walls by sawing through the end walls inside the side walls and cut through the floor from underneath with an Xacto blade. Remove the side walls from the floor in the same manner and discard the floor.

The method for measuring where to cut the walls is by counting boards. Cut slightly outside the location given and sand back to the joint between boards to get a good splice line. Thus you will be told how many boards to keep for each cut.

### Right Wall - 2 windows and 1 door

Take the wall with 3 windows on the right end. Cut to keep 3 boards to the right of the right-most window. Cut to keep 21 boards left of the center window. Keep the portion with 2 windows. The remainder of this wall will become filler later. Now

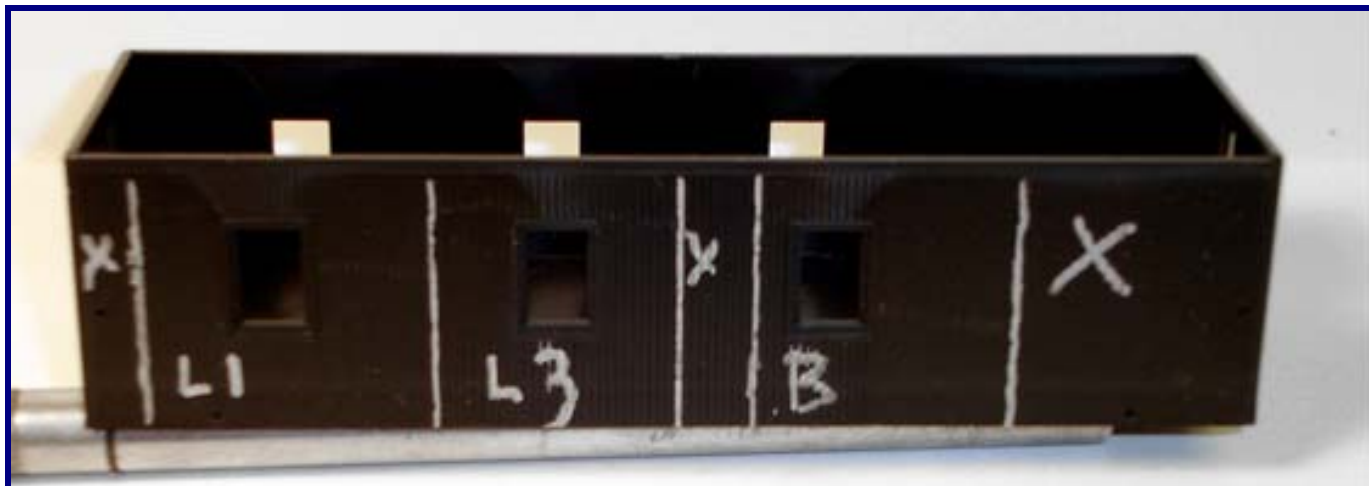
take one of the ends and cut to keep 1 board to the right of the door frame. Cut to keep 1 board to the left of the door frame. Glue the door frame to the left end of the right wall and reinforce with styrene strip. First wall is done. Not too hard?



### Left Wall - 2 windows

Take the remaining wall with 3 windows to the left side. Cut to keep 9 boards to the left of the left-most window. Cut to keep 14 boards to the right of the left-most window. This is piece L-1. Using the remainder of the other wall from the previous step, cut to keep a filler 9 boards wide and label it L-2.

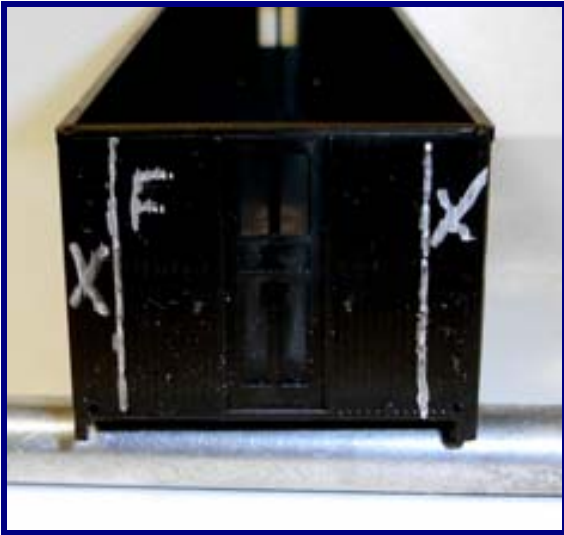
Glue L-2 to the right edge of L-1, reinforcing the joint as before. Cut to keep 9 boards to the left and 9 boards to the right of the middle window and label it L-3. Attach L-3 to the right edge of L-2. I can't remember why I did it this way, but it made sense 13 years ago and it works. Second wall done.





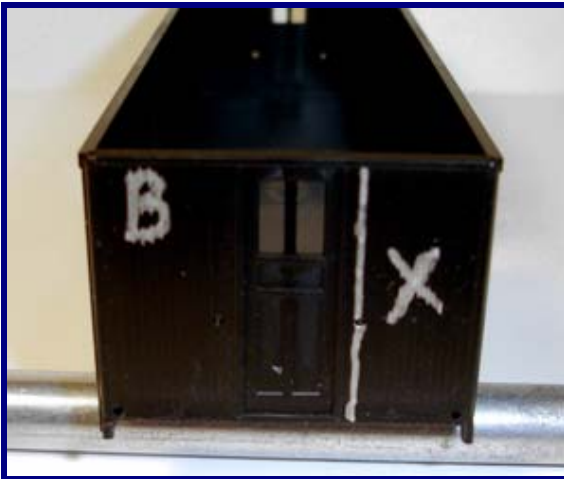
### Front End Wall - 1 door

Cut to keep 9 boards on each side of the door frame. This is the front wall.



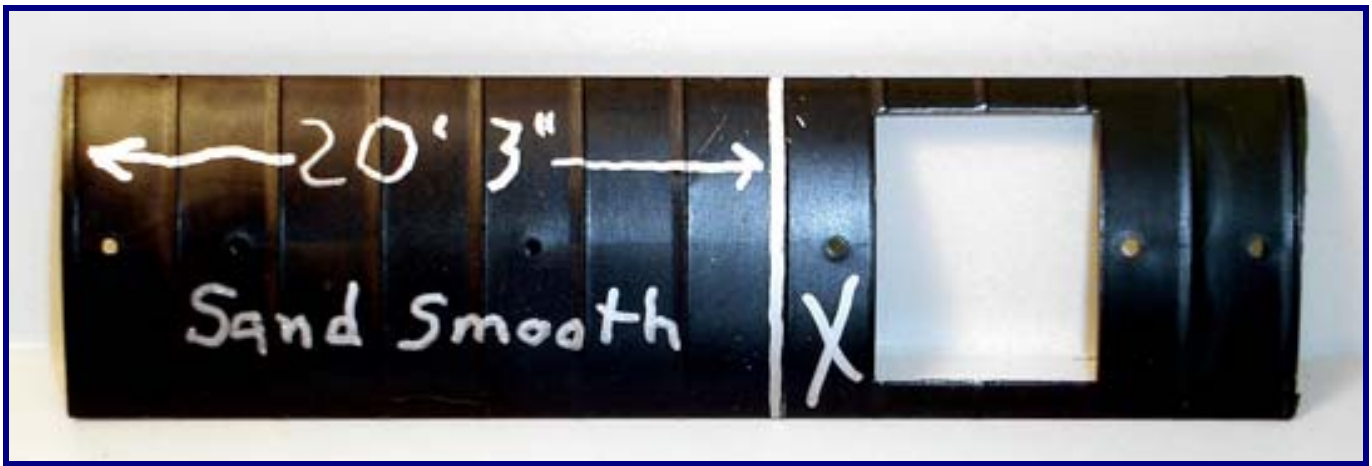
### Back End Wall - 1 window

Cut to keep 3 boards to the left of the window on the remaining wall. Cut to keep 16 boards to the right of this window.



Bevel the inside edges of the corners to 45 degrees and glue the walls together. Reinforce the corners. The dimensions of the house are about 6'6" x 15'5" but it doesn't really matter as long as it is square. Remember, this was only eyeballed from some photos. Add a strip of .010" x .100" styrene around the bottom of the walls except at the door frames to dress up the bottom of the walls a bit.

Since the roof is offset to the left side, the right wall must be a little taller to compensate for the pitch of the roof. Glue a strip of .030" x .030" styrene to the top of the right wall. Glue the roof to the walls with equal overlap on each end and flush with the left (no door) wall. Make a veneer from .005" sheet brass cut 10'0" x 20'6". Regular household scissors cut this very well. Make a score down the centerline of the long dimension with a couple of passes with an old Xacto blade. Make a slight triangular notch in the edge of the sheet at each end of this line and on each corner. Make a slight fold down the centerline to make the pitch of the roof. Fold down about 1 scale inch all the way around to simulate a metal roof nailed to the wood walls. Glue the brass to the plastic sub-roof cut earlier using ACC. I added ribs to the roof with automotive pinstripe tape (the narrowest I could find, about 1/16") at 3'6" intervals. Between each pinstripe rib I added strips of .010" x .025" styrene. Having not seen the roof of the prototype from above, it is only a guess that looked about right.



Add a fascia to both sides of the roof using .020" x .100" styrene. Make a gable sheath from .020 styrene sheet for each end. Add a strip of .010" x .080" styrene to the top of the wall all the way around (known as a frieze in builder's terminology). Make rafters from .030" styrene set on 16" centers.

You may "superdetail" the house body with the electrical conduits and junction boxes if desired using .030" brass wire and .080" x .080" x .030" styrene blocks. Above each door and along the walkway are light fixtures made from the same blocks with a small hole drilled in the center to simulate the missing household type light bulbs. There is a 2'6" grab over the back window, slanted down to the outside. There is also a 2'0" vertical grab mounted to the house body a few inches above the floor (see photo). These are bent from .020" brass wire.

### Handrails

The prototype handrails as it sits in the museum are steel angle iron with square posts made from two steel angles welded to form a square tube. There is a great photo of CE-15 taken in 1957 on page 113 of *The B&O Color Guide to Freight and Passenger Equipment*.

My model's handrails are made from 1/16" Plastruct brand L angles. NOTE: The gray Plastruct shapes are not styrene, but ABS plastic so special cement is required. You must use Plastruct Plastic Weld cement. These handrails are quite fragile. Knowing what I know now, I would recommend using K&S 1/16" square brass tube and Special Shapes 1/16" brass angles soldered together. This is much more difficult to achieve, but sturdier by far.

I recently learned a new technique for soldering which I will relate here. Line everything up (I made a

jig out of a wood 2"x12" with some small nails to hold everything in place) and put some paste flux on the joint. Heat the iron and melt a big blob of solder on the end and briefly touch it to the joint while holding the piece down with the point of an Xacto knife or something similar. The solder will flow in and harden and you can remove the holding tool. Use Alligator clips as heat sinks on adjacent joints to keep from melting one joint while heating another. This is easier said than done and some amount of practice and lots of patience is called for... and lots of filing.

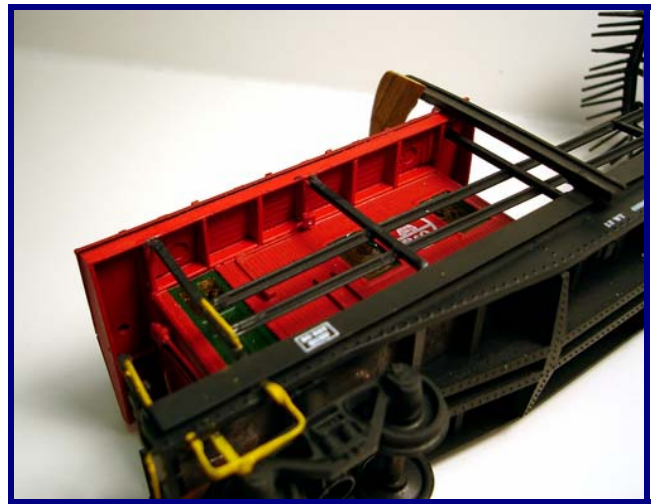
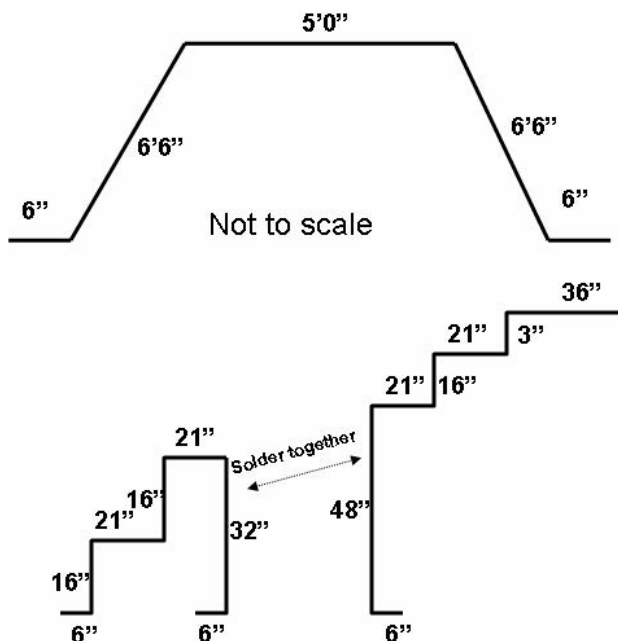
If you chose to use the Plastruct, cut the 13 short posts to 3'6" and the three tall posts 7'3". If you use brass, make them each about 6 scale inches longer and drill holes in the floor of the flatcar to set them into. Whichever material you chose, make two short side rails 28'9" and two long side rails 43'6". The flange of the bottom rail must be notched to clear the posts, but the top rail is attached directly to the top of the posts (except where the flange of the top rail must be notched to clear the three tall posts. Make eight end rails 3'0" long. The flange on the ends of the four bottom rails must be filed to clear the post as before. Note that there is a 1/16" flat brass bar attached to the outside edge of the end posts which overlaps the flatcar's end beam. It is slightly S shaped and is 2'3" long. It goes from the bottom handrail to the end beam. Set the handrails aside until later in the process.

### Superstructure - The Platform and Arches

The platform sits on legs bent from .040" x .010" flat brass bar. Cut two pieces to 19'0". Bend a 6" foot on each end. Mark the center of the bar. Bend the bar down about 45 degrees 2'6" on either side of the center mark. The diagonal length of the next section is 6'6" from the last bend. (See diagram). The stair risers are also made from the same brass bar. Step

rise is 16" and the depth of each stair is 21". Make two risers for the bottom two steps and two risers for the top two steps. The stair treads are made from .020" styrene 21" x 4'3". Solder or glue the risers into pairs and attach the stair treads to form a sub assembly. The risers should be inset from the edge of the treads a couple of inches but this measurement is not critical. Glue this to the bottom of the platform. Adjust the bends of the platform legs so the whole assembly sits level. Attach to the flatcar deck so the platform is set back from the front edge of the deck boards (not end beam) by 4'6" and centered.

The platform and steps have handrails too. Cut 13 posts from the Plastruct 1/16" angle 3'0" long. Glue a post at each side of the top of the stairs, one on each corner of the platform, one on the center of the front edge of the platform and two to each side edge of the platform about 18" apart. Glue one post to the front (as a person would approach the steps) corner of the bottom step. Attach an angle to the top of the posts leaving the 18" gap on the sides of the platform (so the operator could mount the side ladders from the platform). Attach another angle to form the center rail in the same manner, notching the flange to clear the posts as required. Remember to use the Plastruct glue for these.



The purpose of the front arch is obvious, to support the spines and their deflection gauges. The purpose of the center arch is beyond me. As the prototype sits now, there are numbers on each spine on the front arch and at the same height on the center arch. Also, at the top of the center arch was a curved wooden structure made of two or three layers of lumber (see photo). The purpose of this is unknown, but it is modeled anyhow.

Cut two Plastruct I beams 1/8" x .0625" (narrow flanges as opposed to H beams) to 36'6". Make a slight bend, about 30 degrees, at the center of each by holding the piece over a 100 watt light bulb for a couple of minutes. Turn it over several times to heat evenly. Make the remaining bends 13'6" from the ends until they are slightly closer than parallel. Attach the front arch 5'9" from the front end of the deck, noting that the bottom of the arch extends 3'3" below the top of the deck.

### Arch Braces

Make two front braces from the 1/16" L angle stock cut 14'0" long. Trim the flanges 3" on each end to allow overlap of the end beam and the arch. With the flat web facing front, the flanges are outboard. The top of these braces attach to the top center of the front face of the arch and the bottom attaches to the end beam about 12" in from the ends. Make four lower braces from the 1/16" L angle stock cut 8'9", again with 3" of the flange trimmed from each end. With the web on top, the flanges are outboard. Attach to the INBOARD side of the arch 6'9" above the floor and overlap the brass L covering the stake pockets. I made a triangular gusset for each bottom attachment, likely from a business card saturated with ACC. Add signal mast ladders to the front side of the arch. There is a 90 degree bend at the top so the ladder can attach



to the platform at the gap in the handrails. The ladder runs parallel to, and in front of, the arch to deck level, then bends in about 6" like the ladders on an ALCO FA locomotive. The bottom of the ladder is even with the bottom of the arch.

The prototype had 66 spines (I counted this time at the museum) but mine has 54. Make these by cutting 30-35 pieces of .050" x .030" styrene 4'6" long. Split them diagonally with a razor blade or Xacto to make the points. Make plenty of spares. Every time I show the car I lose one or two. Sand a flat spot on the edge of the wide end to make a larger surface area for attachment to the arch. If you want the spines pointed in different directions, vary the angle of the flat spot you sand in. If you want them uniform, sand them all the same.

Paint the flatcar with arches and platform without the house flat black (after priming of course). Paint the house Floquil Caboose Red and the doors Southern Green. Sometimes I make door knobs by drilling a small hole in the proper place and putting a straight pin through the hole, gluing from behind and painting with brass paint. After painting, add window glazing and a smoke jack to the roof. Brush paint the smoke jack flat black.

Attach the house to the flatcar flush with the left edge of the deck boards 3' forward from the back end of the deck boards. Attach the handrails to the flatcar deck and to the eaves of the roof. When everything is solidly dry, add grab irons bent from .020" brass wire. The three really hard ones are vertical 2'0" grabs mounted to the handrails themselves on either side of the rear end steps a few inches above the floor. It is pretty hard to drill a .020" hole in 1/16" stock.

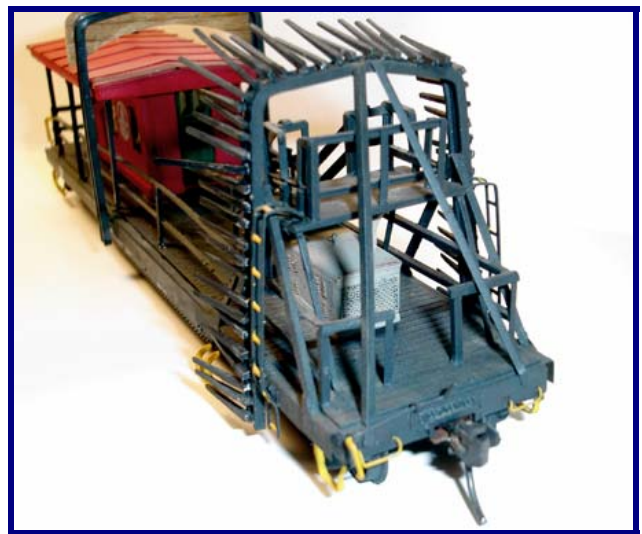
Attach the center arch to the flatcar 19' forward from the back of the deck, ensuring it is plumb. Attach the lumber fascia if desired.

I decaled the car to match my photos as it existed at the Museum when I photographed it. I used materials left over from a number of kits. The B&O on the left side is about 18" with the full height ampersand (&). The CE 15 is the wrong font from an Atlantic Coast Line boxcar decal set (I think by Herald King). On the right side is a 30" Kuhler Capitol Dome emblem (no 13 Great States). Some weight data (incorrect for sure) and a built date adorn both sides of the flat car along with an admonition "Do Not Hump". Note: As restored today, the CE-15 sports a 36" 13 Great

States dome and BALTIMORE & OHIO spelled out on both sides with the car number centered below the dome. I found a 1948 photo of an unidentified clearance car with the same paint scheme in *The History of the Baltimore and Ohio* published by Crescent Books in 1989. Now the easy part of the project is over.

### The Spines

After attaching trucks, couplers and anything else you may want to do, add the spines. This will take lots of patience and the smallest set of tweezers you can find. Thickness of available tools was the limiting factor in the number of spines I could get on my car. I have since acquired a really thin very sharp pointed pair of tweezers, by Xuron. I laid the car at an angle in a foam cradle and began attaching spines at the top center working to the bottom of the arch. The problem for me was the slow drying of the Plastruc cement because you must hold the spine level and at the desired angle of deflection until it sets. I now add replacements with Zap-a-Gap gap filling ACC which is much faster and almost as sturdy. For the other side I set the car on a couple of flat carpenter's pencils (so it couldn't roll off the table) and added the spines down the arch to the bottom. Let everything set overnight and brush paint the arch and spines flat black. When I was happy with all of the above, I hit the ladder rungs, drop steps, stirrup steps, cut levers, hand grabs and the front edge of the stair treads with Accu-Flex DRGW Yellow.



I noticed that I had not put a brake wheel on the car as this was being written. One old photo shows a vertical brake stand on the house end of the car so that is what I will go with.

**SPECIAL NOTICE:** This car exceeds NMRA clearance gauge standards so it may not fit through places you may have already built on your model railroad. Maybe you need a clearance car to check it

## Materials

Athearn:

50 foot flat car

Roundhouse:

3 window wood caboose kit # 3440 (Undecorated)

Detail Associates:

long shank eyebolts, part# SA2222

Evergreen:

.030" x .050" styrene strip

.020" x .100" styrene strip

.010" x .100" styrene strip

.010" x .080" styrene strip

.080" x .080" styrene strip

.020" styrene sheet

K& S Engineering:

5/32" x 5/32" brass L angle, part # 172

.010" x .030" flat brass bar stock

.010" x .040" flat brass bar stock

1/16" x .015" flat brass bar

.030" brass wire stock

out! As always, I welcome suggestions, comments, questions, or people just wanting to talk about the B&O. You may contact me by email at LTCTilley@aol.com. I will answer, but sometimes it takes awhile. Happy modeling!

.020" brass wire stock

.005" sheet brass

for brass handrails:

1/16" square brass tube, part # 1497

Special Shapes 1/16" L angle, part # A-2

Plastruct:

1/8" I beams part B-4

1/16" L angles part # A-2 (plastic handrails)

Tichy:

18" preformed drop grab irons, part #3015

Accu-Flex:

DRGW Yellow

Floquil:

Southern Green

Engine Black

Miscellaneous:

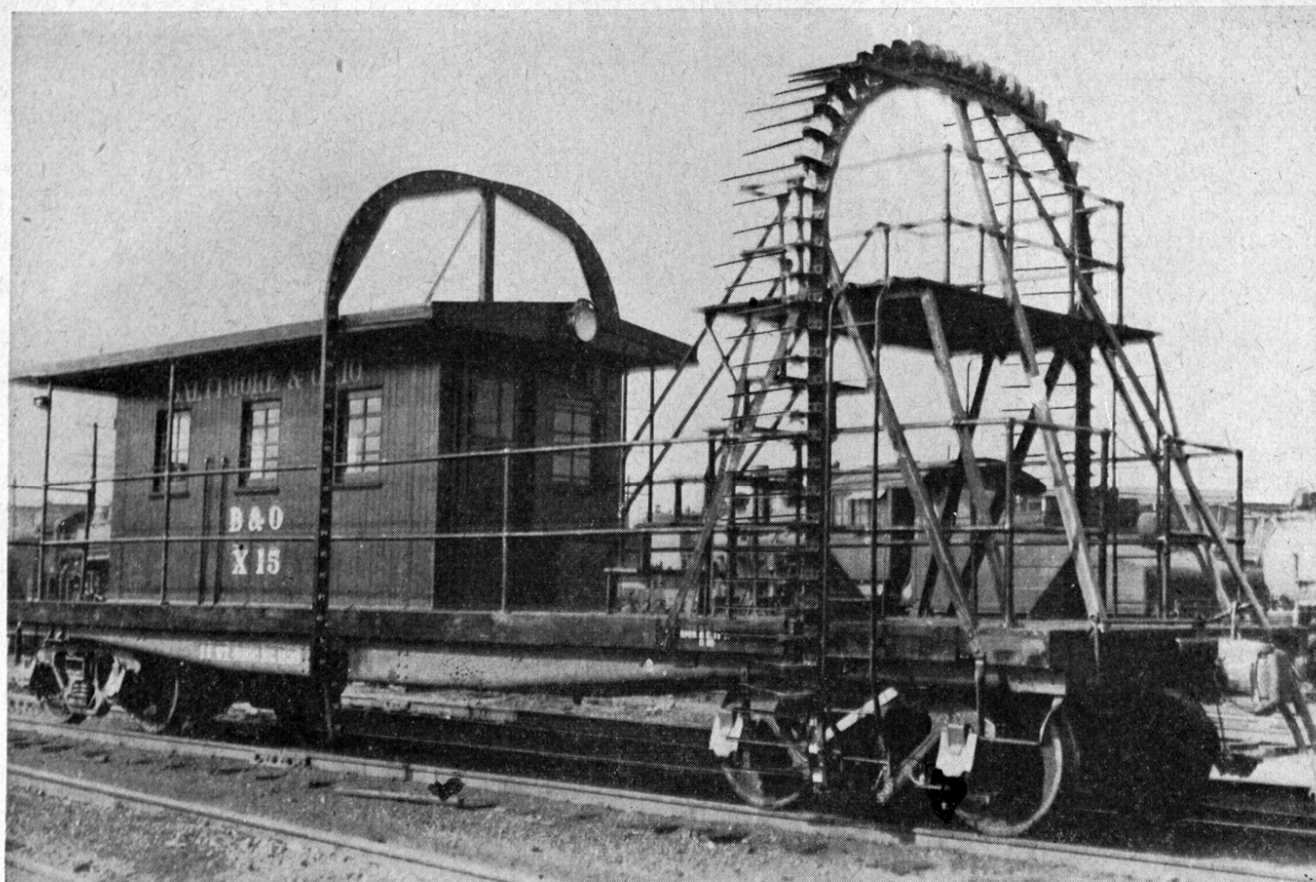
1/16" automotive pinstripe tape

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*Ed: With the kind permission of Bill Schaumburg of Carstens Publications, we are pleased to present the following article by the late Bill Schopp from the December 1951 issue of Railroad Model Craftsman. Bill Schopp (1913-1974) of Trenton, New Jersey was a pioneering HO, HOn3, HOn2, and traction modeler, layout designer, custom locomotive builder, and model railroad author who wrote over 1,000 articles for Railroad Model Craftsman, Toy Trains, and other magazines including some written under the pseudonyms John Kemp, Bill Willmore, and Layout Doctor. This article contains several additional prototype photos and an HO scale drawing (no longer to scale due to production considerations), and provides an interesting historical contrast to Chris' article comparing two approaches over 50 years apart to modeling the same prototype.*

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# Clearance Car

A general service car used to check clearances of tunnels and bridges, also run in a special train in advance of oversized loads. Builds into an interesting, useful model of wide appeal.

by Bill Schopp

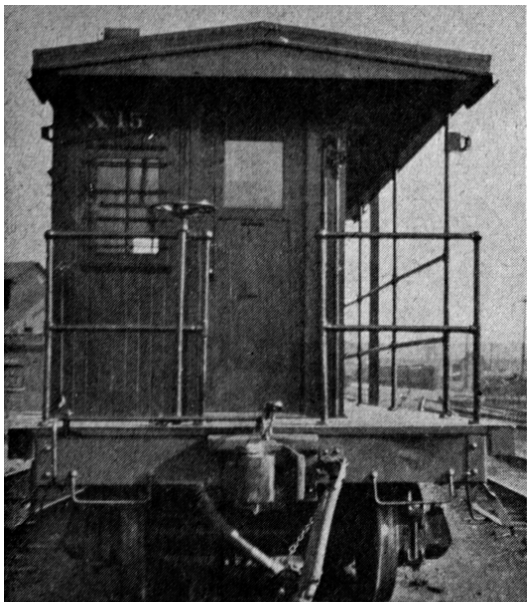
A RAILROAD clearance car is such a rare bird that no model railroad, if percentages of types of cars on a real railroad be followed, should have one. At the same time it is such an interesting looking car that every model railroad president will want one and hang the expense. Clearance cars have been written up only twice in model railroad magazines, both times the same car, New York Central—a rebuilt passenger coach —, and at this time no commercial kit is available. But here is a Baltimore & Ohio clearance car that is a *distinct* car type all by itself, which I have modeled in HO gauge. This is not a super-detailed model that I have built, although it has that appearance since even the essential parts get complicated looking. Actually, many of the parts are oversized for sturdiness, and I will say right here and now, hiding my red face, that for the larger gauges, the same thicknesses of material should be used except for obvious changes necessitated by the bigger scale. (And if some HO gauger wants to make scale sizes 2" x 2" angle braces, more power to him!)

A clearance car on a railroad has two purposes. It is periodically taken over all tracks of the system to check clear-

ances for the record: a rock movement may have closed a tunnel slightly, a new brace may have reduced clearance at a bridge, a fence may have been bent in slightly, and so on. If so, the fingers or feelers or sticks on the main clearance frame (over the truck-center) will be pushed out of position and the change can be spotted if it impinges on the standard clearance for that division. If a shipment that is oversize or very close to the maximum clearance outline is to be routed over the road, a clearance car may be coupled ahead of it in a special train with the outline of the shipment indicated by dowels stuck in the center clearance frame. This, by the way, makes a very interesting special model railroad train, just an engine, a clearance car, a flat car with oversized load, and a caboose.

The car plans presented here have been redrawn from the official Baltimore & Ohio blueprints which were to 1" scale. Some dimensions have been simplified, and much unnecessary (to modelling) detail has been omitted such as the interior fittings of the cabin. The drawing is to 3.5 mm (HO) scale, but with enough of the full sized dimensions to enable anyone working in another scale to build a similar car.

Take a piece of standard HO car flooring shorter and narrower by 1/16" than the car dimensions given. Mark a center line on the bottom and mount your couplers. You have to do this first since, once the car is completed, the superstructure is too fragile to risk doing much work with the car upside down. My model has Kadee couplers, which I have found stay in place better if the little nails are changed to #1 x 1/4" or 5/16" screws as used with Mantua couplers. At any rate all bugs regarding free swivelling and centering of whatever couplers you use must be worked out at this time. Also mount trucks. If these are to be painted box car red (I recommend it) do so at this time, but if the trucks are sprung, disassemble them first to avoid getting the springs fouled up with paint. Cut off any part of the truck or coupler mounting screws that protrude above the floor, then cement on a floor made from bristol board scribed cross-ways. Edge the sides of the floor with strips of bristol board and make end-sills of the same material and cement in place. Make fish bellies from bristol board and cement in place. Paint box-car red. Steps, grab-irons, etc. are wire, inserted into tight pre-drilled holes. Brakewheel shaft is a square J



Rear view of car showing offset shelter and protected passageway. Actual B&O prototype.

sq. bass-wood, pre-painted. I drilled, with the same li'l drill mounted in my pinvice, holes at an angle at the right places up through the floor of the car, then enlarged these holes with a drill just under 1/16" diameter. Spacing the platform above the railings with the above mentioned 3/8" thick piece of wood, and holding it as near the right location as I could, I inserted the supports up from under the car. Each one first had its tip touched with cement, then shoved through the hole. When the brace was almost high enough to touch the underside of the platform, I daubed a mess of cement on it underneath the floor and pushed it up, meanwhile holding the platform down. Then I broke off the excess support under the floor. I put this aside to set firmly and turned my attention to the steps. I will tell you how I should have made them, not how I fumbled around.

Take four to six inches of #24 copper wire, stretch with vise and pliers, then mash somewhat flat between two smooth jaws in a vise or with two steel blocks. If you can find some flat wire, so much the better. This is then bent zig-zag, with zigs and zags both one scale foot as near as you can manage. When you have more than twice as many steps as you'll want, cut in half. If pieces don't match up, rebend until they do. If you come out with one less or one more step than the prototype, remember this is not a super-detail model. The steps are made of metal (cut from a tin-can) and must be soldered to these strap-"iron" risers. Yike! Tin the bottom of all steps with solder.

Make a jig by slitting a piece of 1/4" thick balsa wood with an Xacto knife. This will help steady the lower end of the riser, while you hold the upper end with your left hand. Rest the step, solder side up on the balsa, over the slot and jockey so that riser comes near the end. Dab on a bit of soldering paste, and touch with a hot iron, thus soldering one end of one step in place without (I hope) scorching your fingers. Attach the other riser to the step (it will be the top step when turned over, but we will think of it



Side view of car showing superstructure mounted on a standard flat car body. This car can be put to actual use on your model railroad and will prove most interesting.

as the bottom now) in the same way, *except* that you have to be careful not to unsolder the other riser. I did this job *quick* like a bunny (as they say, although the only bunnies I am acquainted with are lethargic from eating too much) and didn't unsolder the other side, but if you have trouble, get some powdered ochre at a paint store, mix a little with water into a paste, and dab on the previously soldered joint. This is a help, not a cure. Add other steps the same way, adjusting by re-soldering and slight bending as you go along.

When you are done, dip the steps in alcohol to remove soldering paste excess, let dry, then paint black. Next cement the steps in place, to the floor and the underside of the platform. Let dry thoroughly. Then drill up thru the floor and insert the vertical braces midway up the stairs, just as you did the platform supports. These should also be of pre-painted 1/32" sq. bass-wood. Shape step hand-rails, insert into holes in floor next to bottom step and solder to platform railing. Solder in lower step railing. The side ladders are soldered to pins of railing wire pushed into car floor and cemented to underside of platform. These should be pre-painted, then touched up.

Each of the two clearance frames I cut from a solid plank of 1/16" bass-wood with a jewelers saw. If they break, cement, and reinforce with typing paper. Then paint both black. I tried cementing the frames to the car, but found it not strong enough. Finally I pinned them in, drilling two holes through the lower part of each side into the car floor and inserting a piece of hand-rail wire in each hole. The center frame I also pinned to the edge of the roof. The various braces for the frames are more pre-painted 1/32" sq. bass-wood, cemented in place and allowed to dry thoroughly. You may have to notch the platform to get in the two longest braces.

The brackets which hold the permanent feelers on the end clearance frame presented a problem. Part of my solution was to have less of them, to make the job easier, spacing them nearly a scale foot apart as explained here. First of all I made a punch and die set from a piece of

Northeastern 3/16 x 3/32" channeled bass-wood (for the die) and 1/8" square for the punch. I then cut strips of shim brass about 1/16" wide from .003" stock (see your hobby dealer or auto supply store)—a few thousands one way or the other doesn't matter much. I then used my punch and die to form this into about thirty little square U's of shim brass. They weren't entirely square when they came out of the die and were cut off, but a little work with tweezers fixed that up. (You can see I decided to forego the tricky shape of the prototype brackets).

Then I took another strip of .003" shim brass, 1/16" wide and long enough to wrap all the way around the clearance frame and then some. This I spiked to a piece of asbestos (wood would do, but would char) and tinned with solder. Then one by one I grasped each little U by one "arm" with my left hand, and with my right hand soldered them in place on the strip, allowing a very little space between. When the strip was completely covered I stretched it over the clearance frame, trimmed the ends, trimmed the arms of the U's to be approximately equal, then cemented the strip around the frame. After it had dried I painted it black. When this had dried I cemented in short lengths of wire to represent the clearance fingers. No dimensions were given on the official plan for these, but they appear from the photos to be about a foot and a half long. I compromised on a total length for each (including part inside the bracket) of 1/4" in HO. If you intend actually using the car to check clearances, cement fingers straight out, otherwise have them folded back as in the photo. Fingers-out position makes the car a little like a porcupine, dangerous to pick up or brush against. Split bamboo from your model airplane days could also be used for fingers.

Don't forget the spot-light at the back end of the cabin roof, which can be made from a Mantua Mogul headlight. Cement it on. Lettering, for whatever road you wish, should be simple, just road initials and car number. We have been painting as we go along, so no paint job is now required.

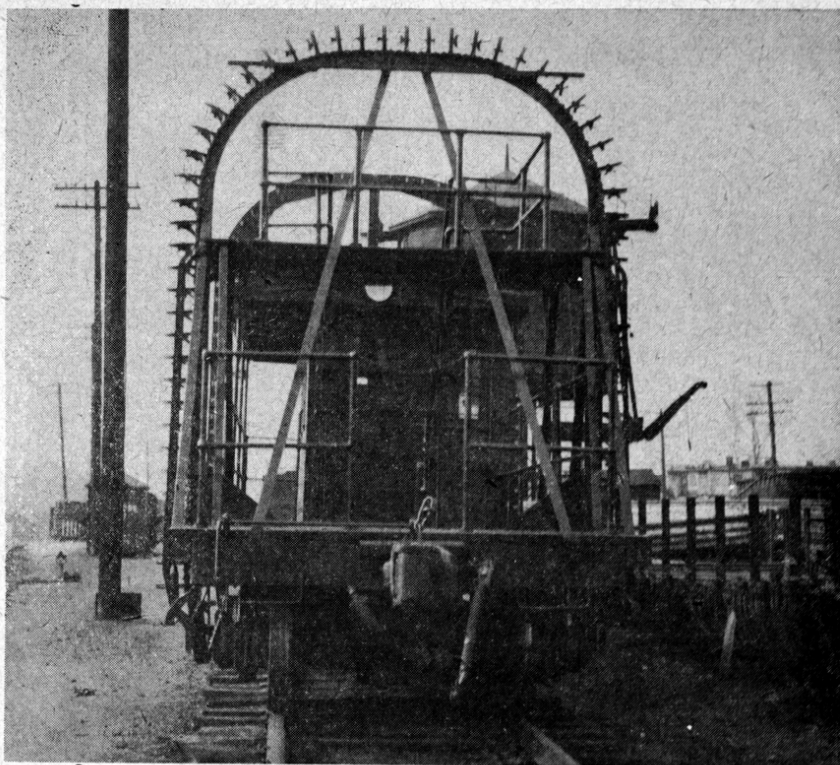


shaped wire thrust into bottom of floor. Brake wheel is cemented to top when car is completed.

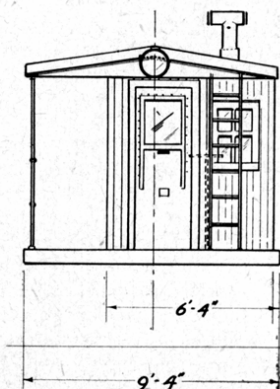
The cabin may be made from scribed bristol board with windows cut out. Strip-wood may also be used. Window frames and sash may be built up, or you can utilize some of the Silver Streak castings available at most hobby stores. Bars across windows on one side are made of wire. The four sides, when completed, are painted caboose red, then cut apart, the corners bevelled to about 45°, and cemented in place and together. Note the cabin is off-center. Cement pieces of 1/8" sq. stripwood inside to reinforce joints between cabin sides and floor. Touch up the paint on corners. Standard freight car roof is used, but cut off all of the soffit (lower part) except that which will stick down inside the cabin. Cement in place. The roof will later be edged with filing folder stock, and painted.

The numerous railings are made of wire, and I did not think it profitable in HO scale to duplicate the pipe-fittings at the intersections, so my way of doing it is somewhat simplified. I suggest any light, straight wire such as stretched #22 copper, tinned annealed steel wire, brass wire (sold in straight lengths by Pittman for trolley overhead). At any rate take any drill slightly smaller than the diameter of the wire you will use and mount in a pin-vise. Spot the locations of the various posts, drill thru the floor (or roof) with this drill, force in wire, leaving plenty of excess. The top railing should be soldered in place first. I spaced this uniformly with a piece of 3/8" thick wood (Northeastern). Next the lower railing, spaced with a piece of 3/16" thick wood. The end rails are square U's of wire, with extra lower rails. Chains are from HO chain sold by most hobby stores. Cut off posts uniformly.

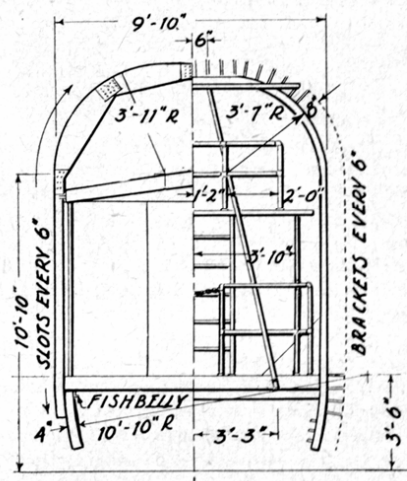
The platform is 1/32" pre-scribed stripwood with a second layer underneath with the grain running the other way and inset from the edge. The uprights are pins, inserted after the floor has been pre-painted box-car red. The railings are shaped to a square C shape, then soldered on using the same spacers as above. The platform is supported on four 2 x 2 angle braces which I "duplicated" with 1/32"



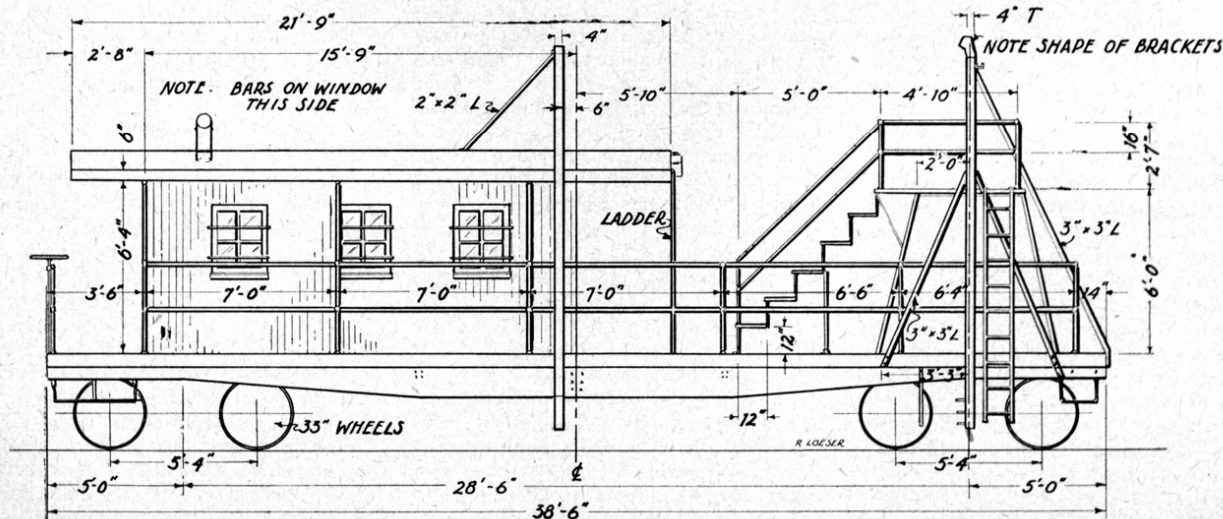
Business end of car as stored on a siding on the Baltimore and Ohio Railroad. The plans below are shown full size HO.



ELEVATION (CENTER)



END ELEVATION



SIDE ELEVATION



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# CUTTING RIGHT TO THE BONE

## MODELING THE B&O's KK-4B MALLETS

BY GREG LARocca

PHOTOS BY AUTHOR UNLESS OTHERWISE SPECIFIED.



### Introduction

There is an old saying that while beauty is skin deep, ugly cuts right to the bone. Arguably, the ex-BR&P 2-6-6-2's inherited when B&O acquired that road were the ugliest steam locomotives on the entire B&O system. With their plain-Jane fronts, large, square-chested front cylinders, and boiler mounted air tanks, the KK-4 and subclass engines did not reflect standard Mt. Clare practice. And yet, as one studies these engines, one sees beyond the superficial ugliness and instead is struck by the essential, underlying beauty of function over form of these hogs. Perhaps it is ugliness that is only skin deep, whilst beauty cuts to the bone.

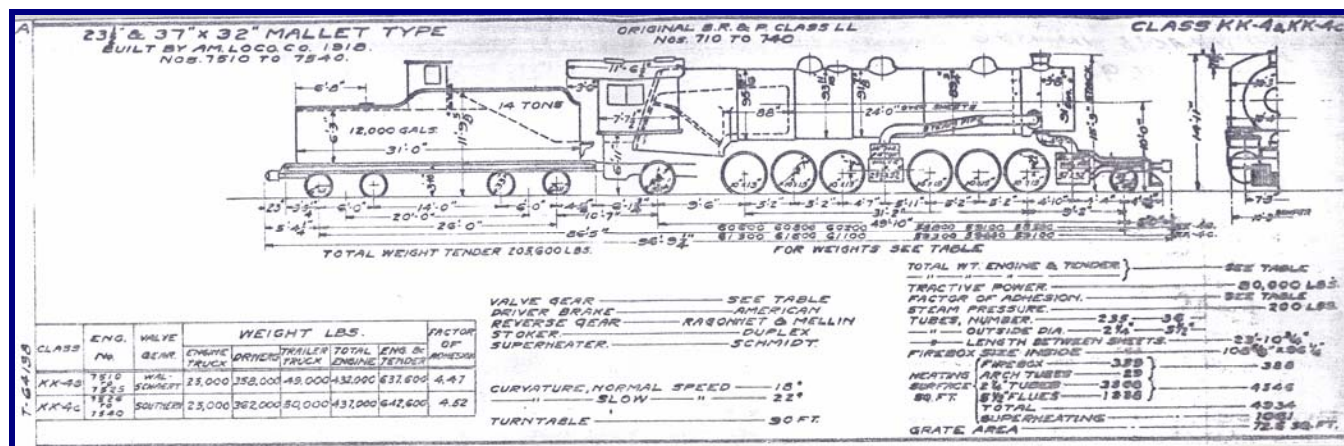
### The Prototype

Buffalo, Rochester and Pittsburgh Class LL 2-6-6-2 Mallets were built between July 1914 and June 1923, numbered 700 to 754, by Alco Schenectady (700-

704) and Alco Brooks (705-754). As delivered, the engines were true Mallets with 37 x 32 inch front cylinders and 23 ½ x 32 inch rear cylinders. Other vital dimensions were 57 inch drivers, 200 PSI boiler pressure, 445,000 lbs total engine weight (excluding tender) and 80,000 lbs tractive effort (Edson, 1992). The engines were built to take the place of double heading Mikados; engines 700 to 740 had lighter construction of the frames than the other locomotives in the class, and later, when it became common to double-head the Mallets, they were almost never run in tandem (Pietrak, 1992).

When the B&O formally took over the BR&P on January 1, 1932, the class LL engines were reclassified as KK-4, subclasses a-d, numbers 7500 to 7554 as follows:

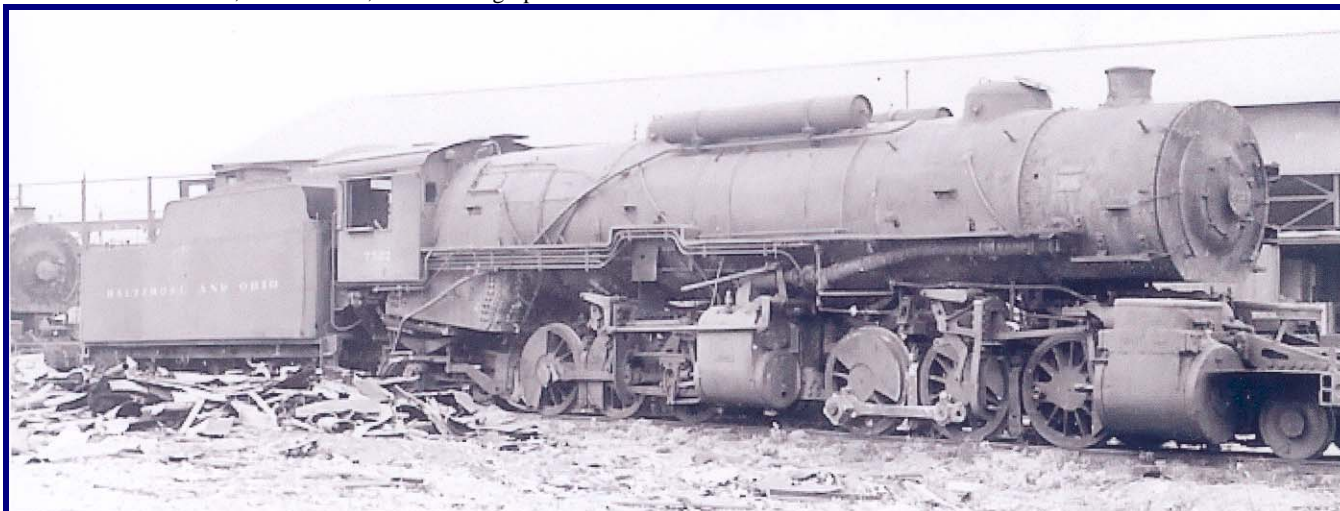
Old Number Series	New Number Series	Class	Built Date
700-704	7500-7504	KK-4	July, 1914
705-709	7505-7509	KK-4a	March, 1917
710-725	7510-7525	KK-4b	January, 1918
726-740	7516-7540	KK-4c	May, 1918
741-754	7541-7554	KK-4d	June, 1923



Bill Barringer Collection

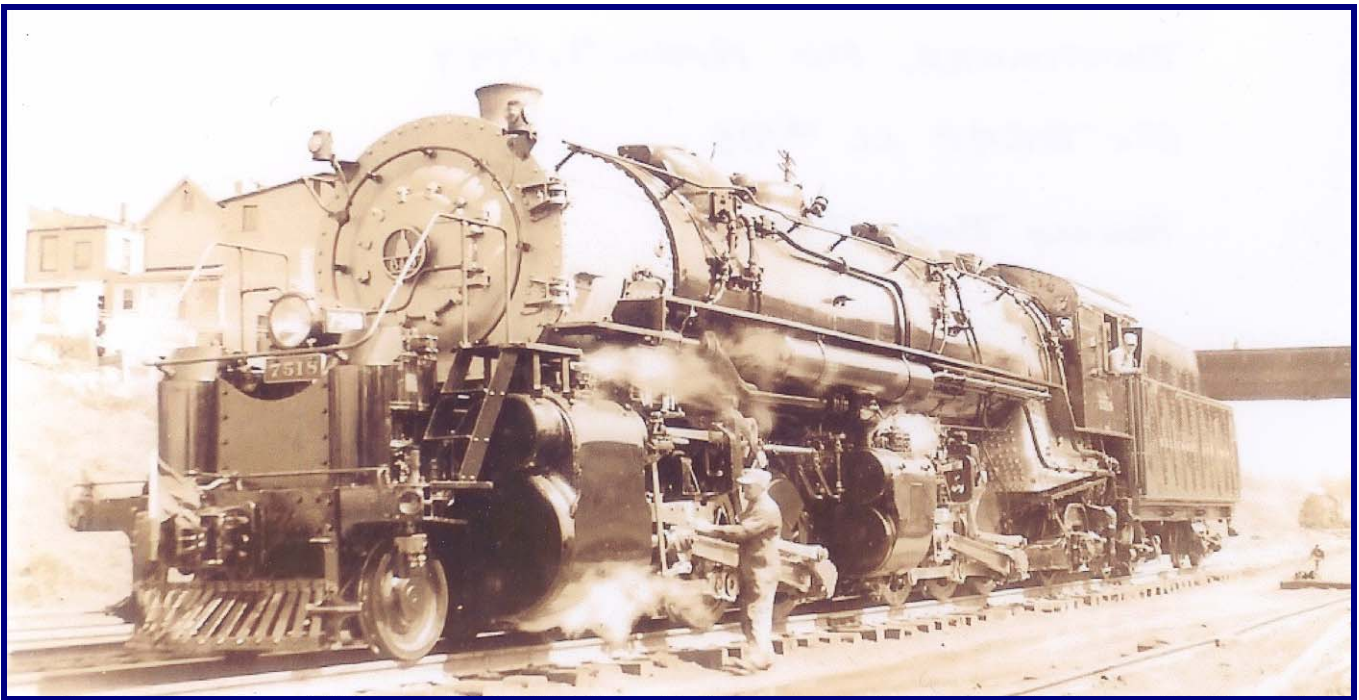


KK-4b #7518 Mt. Clare, MD 4-29-48, B&O Photograph. B&ORRHS Collection.



KK-4d #7522 Butler, PA 5-10-51, L.A. Stockey Photograph. Bill Barringer Collection.





KK-4b #7518 Mt. Clare, MD 4-9-49, Howard Barr Photograph. Bill Barringer Collection.



KK-4b #7515, photographer unknown. B&ORRHS Collection.

Note that 7518 was rebuilt by the B&O as Class KK-5 in 1949 by the addition of a new cast frame, automatic lubricators, and moving the air pump(s) to the pilot deck behind a pump shield (Mainey, 2001). This engine also received a B&O plate on the smokebox front; every picture I've seen of the KK-4 engines shows them with a round number plate. That did not stop me from putting a B&O plate on my engine, however.

These engines pretty much remained homebodies, serving out their lives on the ex-BR&P lines, with most being scrapped by 1951, a few making it to 1952, and 7518 being retired and scrapped in March of 1953. However, four engines, 7513 among them, were stationed at Smithfield on The Sheepskin (FM&P) in the 1940's as helpers (Roberts, 1993).



## The Model

Because 7513 managed to at least get close to Sand Patch (which is the location of my model railroad) and this is the engine pictured in *Sand Patch, Clash of Titans*, I decided that would be the engine I'd

model. The KK-4b had dimensions similar to the USRA 2-6-6-2, which is available in HO Scale from Bachmann Spectrum. Here is a comparison of the two locomotives:

Type	Steam Pressure	Cylinder Bore & Stroke	Driver Diameter	Tractive Effort	Valve Gear	Boiler Diameter	Engine Weight
USRA 2-6-6-2	225 lbs	23 x 32 & 35 x 32 in	57 in	80,000 lbs	Baker	90-96 in	448,000 lbs
KK-4b	200 lbs	23 ½ x 32 & 37 x 32 in	57 in	80,000 lbs	Walschaert	91-95.5 in	432,000 lbs

To me the most critical dimensions were the driver and boiler diameter, and these compare favorably between the two locomotives. There are two major differences, however, in that the KK-4b had slide valves, and thus square cylinder chests on the front cylinders, and Walschaert valve gear. About the front cylinders, little can be done short of major surgery, but looking at pictures of the prototype against the model, it appears that the model is fitted with Baker valve gear. I'm not an expert on valve gear by any means, so perhaps I am mistaken about this, but the point is that appearance-wise, the Spectrum model is close enough to be a good base for a KK-4b 2-6-6-2.

## Construction

The first step is to remove everything that is not prototypical for the KK-4b. This includes the smokebox front, double air pumps, including any associated piping, bell, the smokebox number boards, markers, whistle, the air tanks under the running boards, and the pop valve assembly.



I started the conversion by detailing the new smokebox front. Carefully file away any flash along the rim of the casting, and then drill appropriate sized holes for the B&O plate, marker lights, and handrail stanchions. I have found a really handy tool to have is a Number Size Drill Gage. General Hardware is one brand; their #15 covers drill sizes 1 to 60, and #13 covers drills 61 to 80 (I was told at the Berea train show this past October that General has dropped the #13). Simply put the pin on the castings to be added to the smokebox front into the various holes until you find the right size, and then drill out the smokebox with the corresponding drill. One other thing you need to do (and it should be done before any other work on the smokebox front) is to cut off the bottom of the smokebox front casting to match the flat part of the original smokebox front. I simply held the two smokebox fronts back to back, scribed a line, and then cut off the excess with my Dremel. The nineteen cleats on the smokebox door could be reduced to 8, however this was not attempted. Super glue the stanchions and handrails made from 0.020" brass rod, but do not attach the markers or B&O plate at this time. Set the smoke box front aside for the time being.



The next step is what sets these engines apart from all other B&O steam locos—the torpedo air-tanks. First, discard the brass tubing that PSC gives you with the air tank end castings. They are too short, and are cut sloppily to boot. Take a piece of K&S 7/32" tubing, and cut off two 10 scale foot lengths. On the end castings, remove the attachment pins, and then super glue them onto the brass tubes, making sure that the flat portions on the bottom of the end pieces are aligned such that the torpedo tubes will sit flat on the boiler. Next, glue lengths of 2" x 2" styrene strip onto these flat platforms in order to raise the air tanks above piping already on the boiler. Cut the 2 x 2 over-length, ACC onto the bottom of the end castings, and then trim to final length. Finally, wrap 1" x 3" styrene strip around each tank about 1/3 of the way in from each end and super glue. I believe that these represent the straps that actually held the tanks in place, and the fastidious modeler may wish to fabricate the actual attachment brackets, although I am not cognizant on their appearance or placement.

At this point, I painted the air tanks, and most of the other detail castings, before attaching to the locomotive. These parts include the Nathan top injector, the bell support, the cross-compound air-pump, the pop-valve shield (see text below), the dog-house, the back-up light and bracket, and the markers. The smoke-box front can be painted at this time, also. For painting brass, I first prime with Ditzler Auto Lacquer, then paint with Polly-Scale Steam Power Black; the smoke box front was done with a 1:1 mixture of Floquil Graphite and Silver, thinned 50% with Lacquer Thinner. I also brush painted the bell hanger, the part of the whistle I did not want in brass, and the B&O plate with Steam Power Black. After the paint on the B&O plate was dry, I used 600 grit wet/dry paper to remove the paint from the raised detail, leaving it polished brass with a black background. Finally, I painted the inside of the bell with Polly-Scale Caboose Red.



I now attached the Nathan Top-Mount injector to the boiler. Drill an appropriate sized hole immediately behind the front sand dome, clip off most of the mounting pin, and ACC in place. Gently pry the stock Nathan side-mount injectors from the boiler, clip off where the pipe enters the side injector, and gently bend the pipe up and into the new top-mount injector. Super-glue in place.

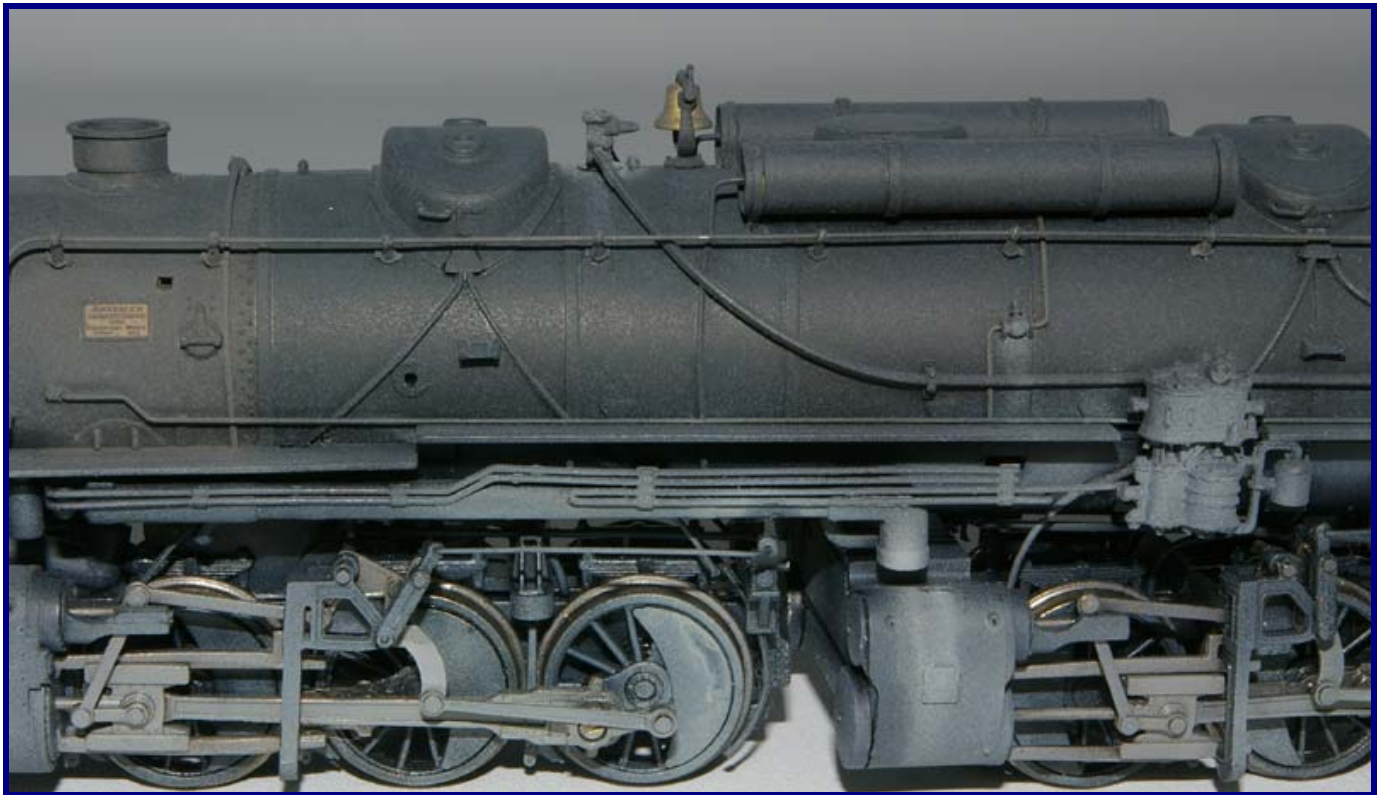
I then attached the bell support to the boiler, again drilling a appropriate sized hole, clipping the mounting pin, and super-gluing in position, immediately behind the top-mount injector. The bell can then be added. Note that the cord attachment is on the fireman's side.

As mentioned above, I had removed the plate with the original cast pop valves by gently prying up. I

then clipped the pop valves off, smoothed the plate with files and then fine wet/dry paper, and pressed the plate back into place. The plate was then touched up with Steam Power Black.

The air tanks were super-glued on next, eye-balled into position. Air lines were made by bending 0.020" brass wire, and run from the front of each tank to pass behind the injector line, and through a #76 hole drilled into the running boards so that the wire "disappears" under the boiler. These air lines were held in position by running a bead of super-glue along where they touch the boiler. At the back of the air tank castings, I couldn't make out exactly how the air line was placed, so I simply bent a line to run from one tank to the other. This was ACC'd into the holes in the end castings. Once these lines were dry, they were brush painted with Steam Power Black.





I then removed a portion of the fireman's running board, drilled an appropriate sized hole, and glued the cross-compound air pump in place. I clipped off part of the original cooling coils, and reattached the remaining piece under the running board. See the picture for how this should appear. Most KK-4 engines had the running board go up and over the air pump, although some did not; 7512 didn't, for example (Sagle and Stauffer, 1964). 7513 did have the "up and over" running board, but I was too lazy to model it. Some 0.020" styrene would do the trick, although shaping it looks to be a cut and fit job.



The new pop valves were then super-glued between the fourth and fifth lagging fasteners back of the rear sand dome. They were left in natural brass. A shield was made from K&S 5/32" x 5/16" rectangular brass tubing by first using a half-round file to round the end of the tube to match the boiler diameter, and then cutting a piece one scale foot long, measured from the top of the concavity. This was painted as stated above, and then slipped over the pop valves and a bead of ACC run along the edges to bond in place. The whistle was then super-glued between the fifth fastener and the last boiler band, slightly off-center towards the fireman's side.

The cab on the model has the distinctive USRA cab, with a deep arch to the roof. The actual cab had a flatter roof, with the eaves curved more sharply. The cab vents on the model are on either side of the longitudinal center line of the roof. On the actual loco, they were both on the center line. The extensive rebuilding needed to make these changes would have been too extreme for this effort.



The tender modifications included attaching a dog-house to the deck, and a back-up light to the rear. The dog-house was a brass casting I picked up at a train show a month of Sundays ago, made by a company called Keystone Replicas. I have no idea if they are in business yet or not; a quick Google search turned up nothing. Even more years ago, I had bought a cast white metal dog house, I think made by Cary or Selley, but the Bowser Catalog I have (16<sup>th</sup> Edition) doesn't list one. So, you're on your own here, with the best bet being to fabricate the thing from 0.020" styrene. Unfortunately, as I write this, I don't have the model anymore to take measurements from (see the Epilogue). The backup light is mounted onto its bracket, appropriate sized holes are drilled into the back of the tender, and it is super-glued in place. An MV #149 lens finishes off the backup light.

### Finishing Touches

I installed Kadee whisker couplers to the pilot and tender. I glued the smoke box front on, painted the stanchions and handrails black, and attached the markers and B&O Plate. MV #300 lenses in the markers finished the front end. I touched up any paint that needed touched up, and then used an air brush to spray Polly-Scale flat finish over any glue splotches or other shiny areas. I also applied Polly-Scale gloss to the cab sides, and tender sides and back. The Champ decals were then applied, snuggled down

with setting fluid, and sealed with more Polly-Scale flat finish. Next, I weathered the engine with thinned, Polly-Scale earth, grime, and rust colors airbrushed on heavily (roughly two eye-droppers full of color to one ounce of 70% isopropyl alcohol). I then added window glass to the dog-house using Micro Scale's Krystal Kleer (when the Krystal Kleer dries, add a drop of Floquil's Glaze over the Krystal Kleer to make it truly "Crystal Clear"). The final touch was to add a layer of real coal over the cast on load in the tender by brushing on a coat of Elmer's White Glue-All, sprinkling on a thick layer of finely crushed coal (Santa brings me a fresh lump every December), pressing down with my fingers, and then shaking off the excess.

### Epilogue

In my November-December, 2006 editorial, I wrote about how I was becoming more aware of what equipment was used on Sand Patch in the mid-1950's. I have been selling off those engines and cars that were unlikely to be seen on Sand Patch, and unfortunately, this engine was one that I just couldn't justify despite it's being on the FM&P at one point. So, it has been sold to another B&O modeler who is modeling the ex-BR&P lines. Even though I was sorry to see it go, I am happy that someone else is having the pleasure of running it on his layout.

## Materials

Keystone Replicas:

PRR Small Steel Brakeman's Cab (see text)

Cal Scale:

190-236 Smoke Box Front, PRR 7'6"  
190-240 Air Pump, Westinghouse Cross  
Compound  
190-244 B&O Plates  
190-247 Pop Valves  
190-250, Whistle, Large, Modern.  
190-251 Boiler Check Valve, Nathan Top  
Feed  
190-280 Marker Lights, Loco & Tender  
190-281 Standard Bell, Rope Pull  
190-304 Headlight, Pyle, Switcher and Back-  
up  
190-478 PRR Headlight Bracket

Precision Scale 31057 Brass Air Tanks

Kadee 148 Whisker Couplers

Cary 118 Handrail Stanchions

MV Products

149 clear lens  
300 clear lens

K&S Engineering:

5/32" x 5/16" brass rectangular tube  
7/32" brass round tube  
0.020" brass rod

Evergreen:

1 x 3 HO scale styrene strip  
2 x 2 HO scale styrene strip  
0.020" styrene sheet

Champion Decal Co. EH-6D B&O Dulux Steam  
Locomotive lettering

Polly-Scale:

Steam Power Black  
Caboose Red  
Flat Finish  
Gloss Finish

Floquil:

Graphite  
Bright Silver  
Crystal Cote

Micro Scale Krystal Kleer

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**PLANNED FOR THE NEXT ISSUE**  
**AWARD WINNING B&O MODELS AT THE 2006 O SCALE NATIONAL**  
**AN OLD TIME BALTIMORE & OHIO RR BOXCAR OF 1867**  
**MODELING OPEN HOPPERS, W-1 AND SUBCLASSES**  
**B&O MODELS FROM PROTOTYPE MODELERS MEETS**

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